

FIG. 1

FIG. 2

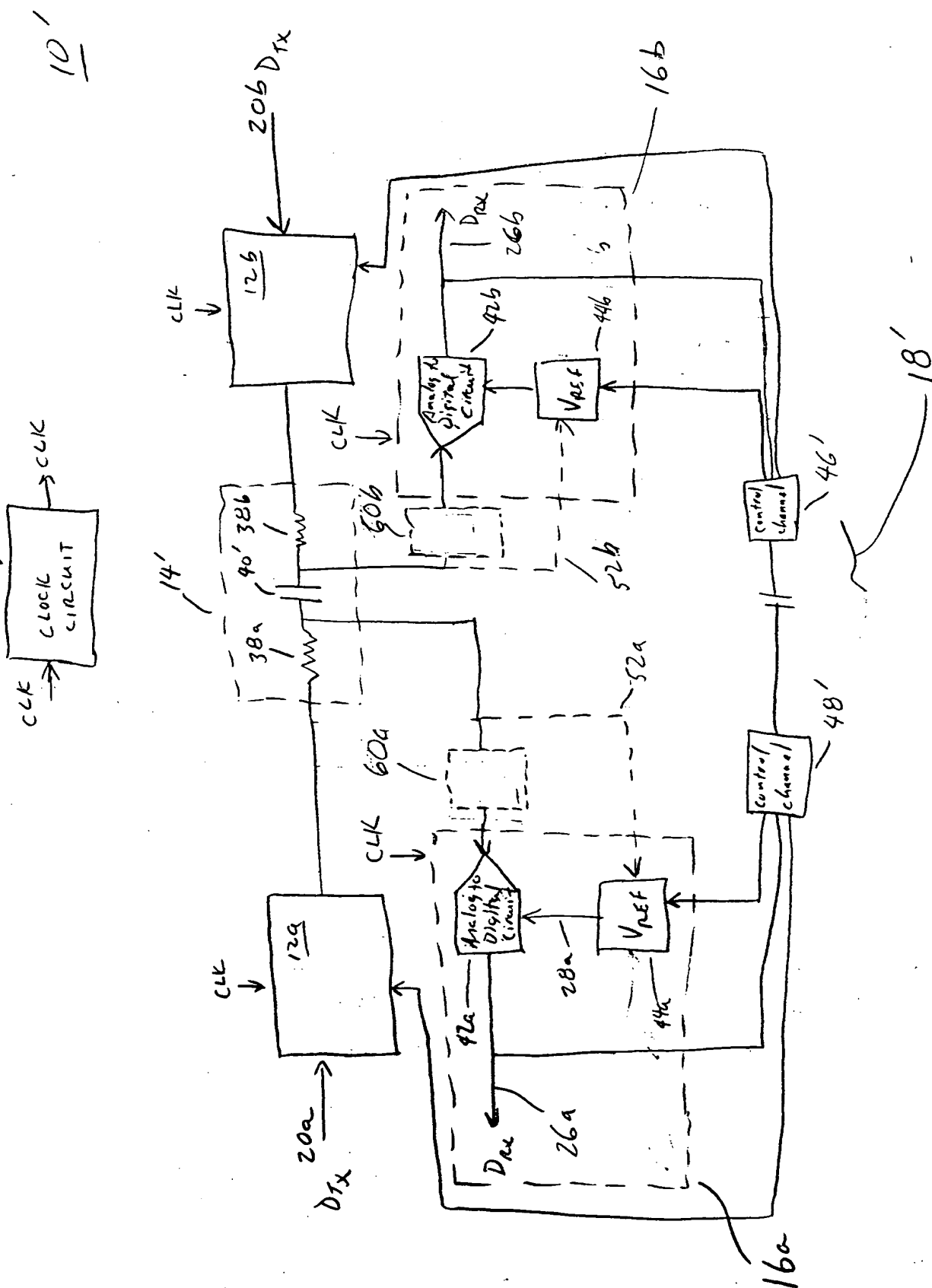


FIG. 2

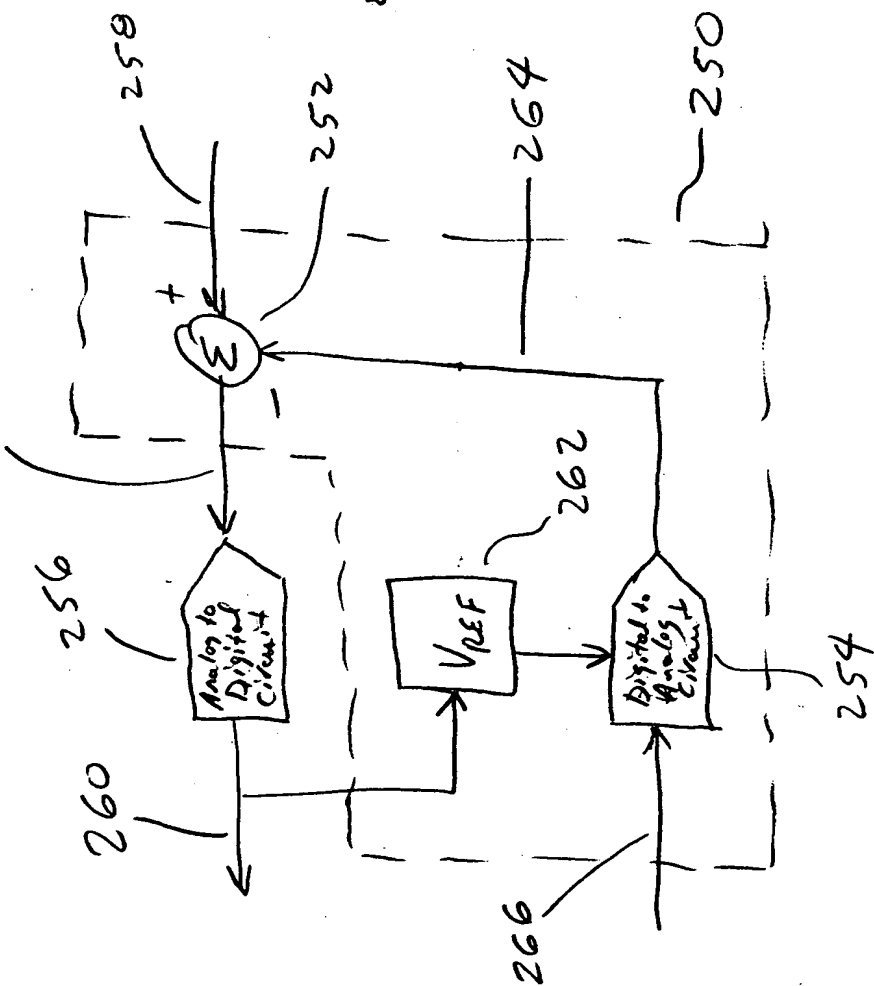


FIG. 3

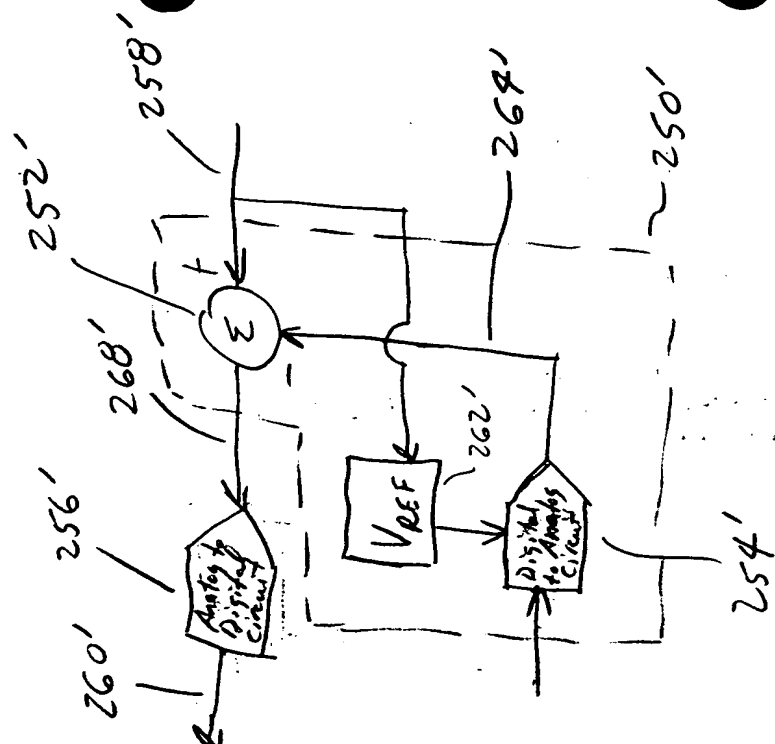
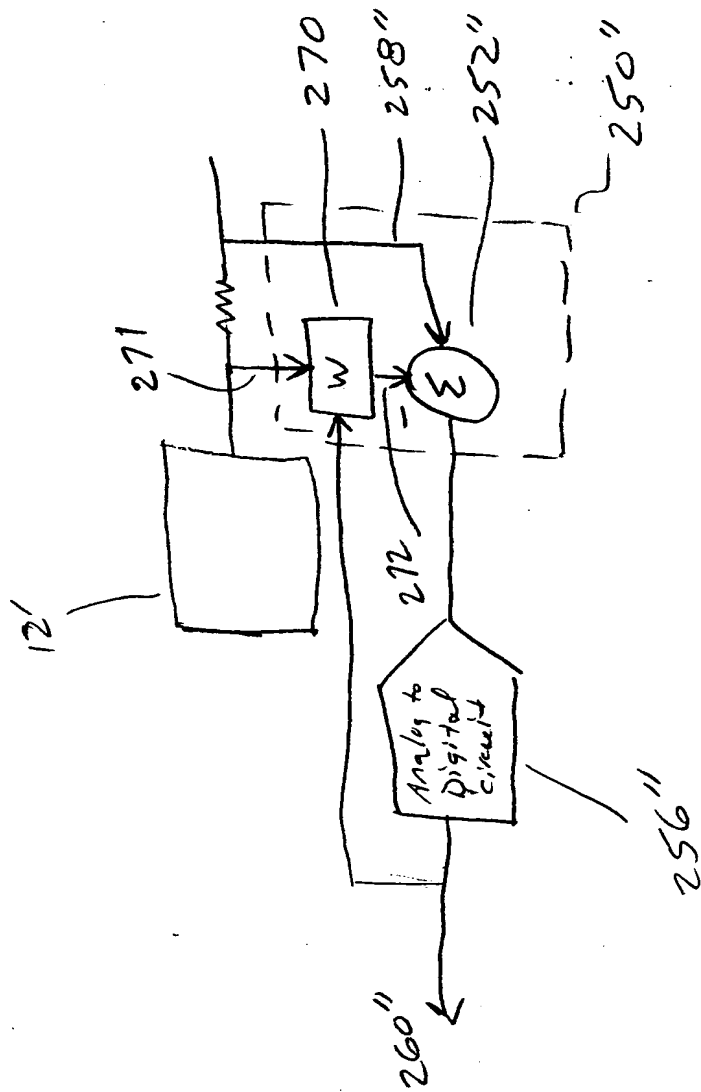


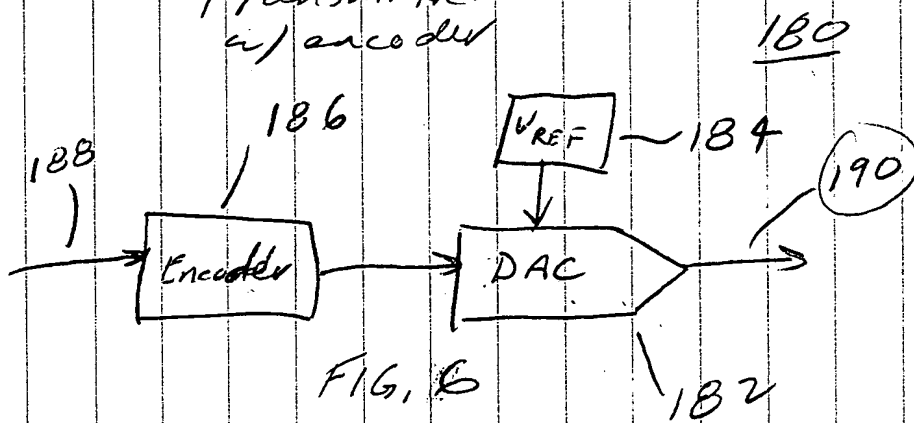
FIG. 4



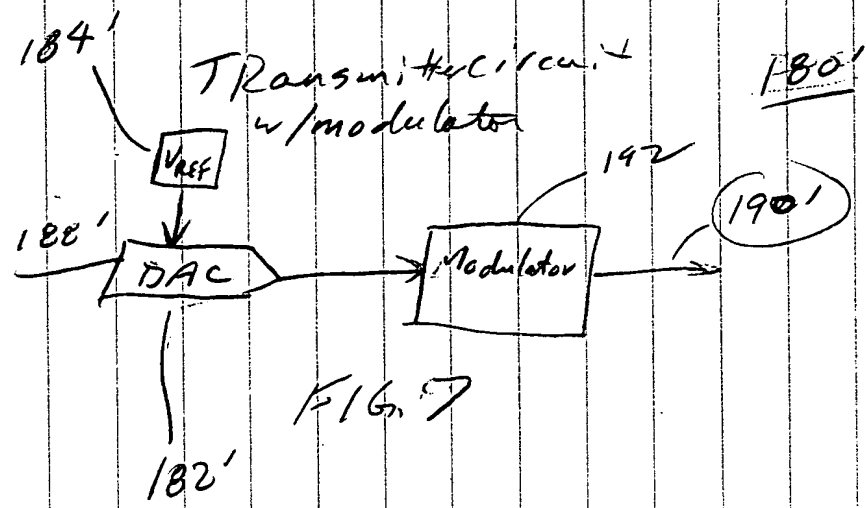
588

TOPS FORM  
7551 WHITE  
7552 CANARY

Transmitter circuit  
w/ encoder



Transmitter circuit  
w/ modulator



09782241.024534

688

Receive u/decoder

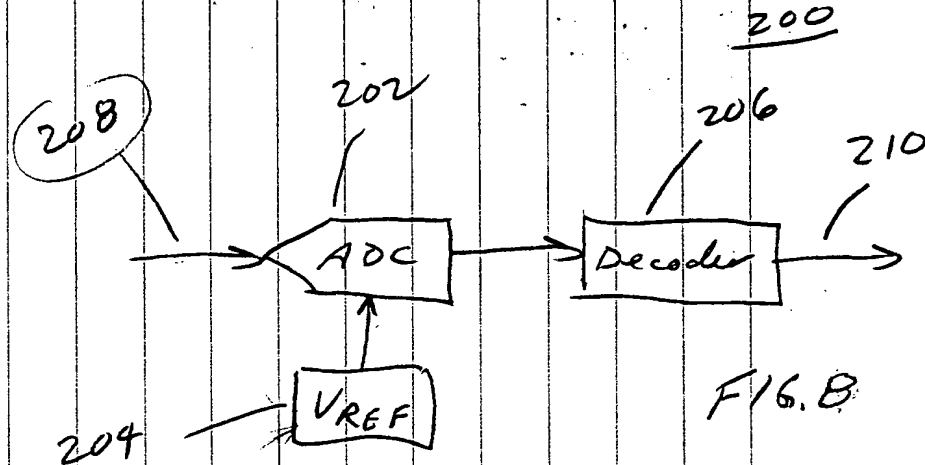


FIG. 8

Receive u/demodulator 200'

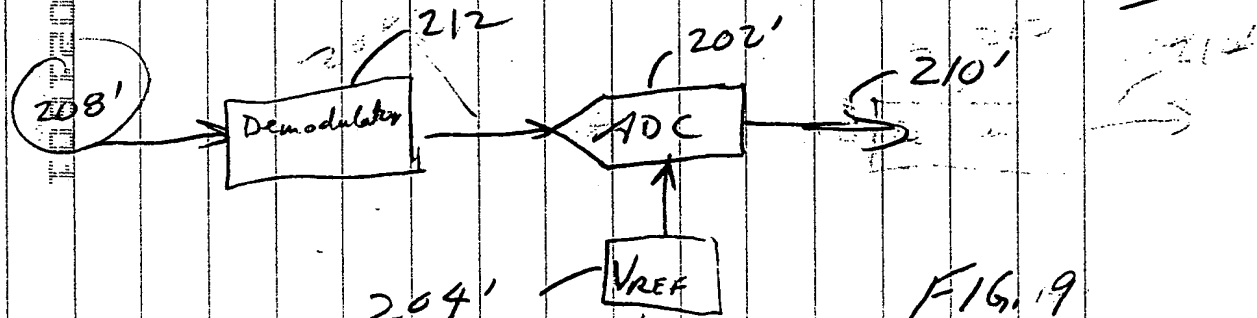


FIG. 9

7088

Apr. 15, 1999

ADSL Barrier Communications.

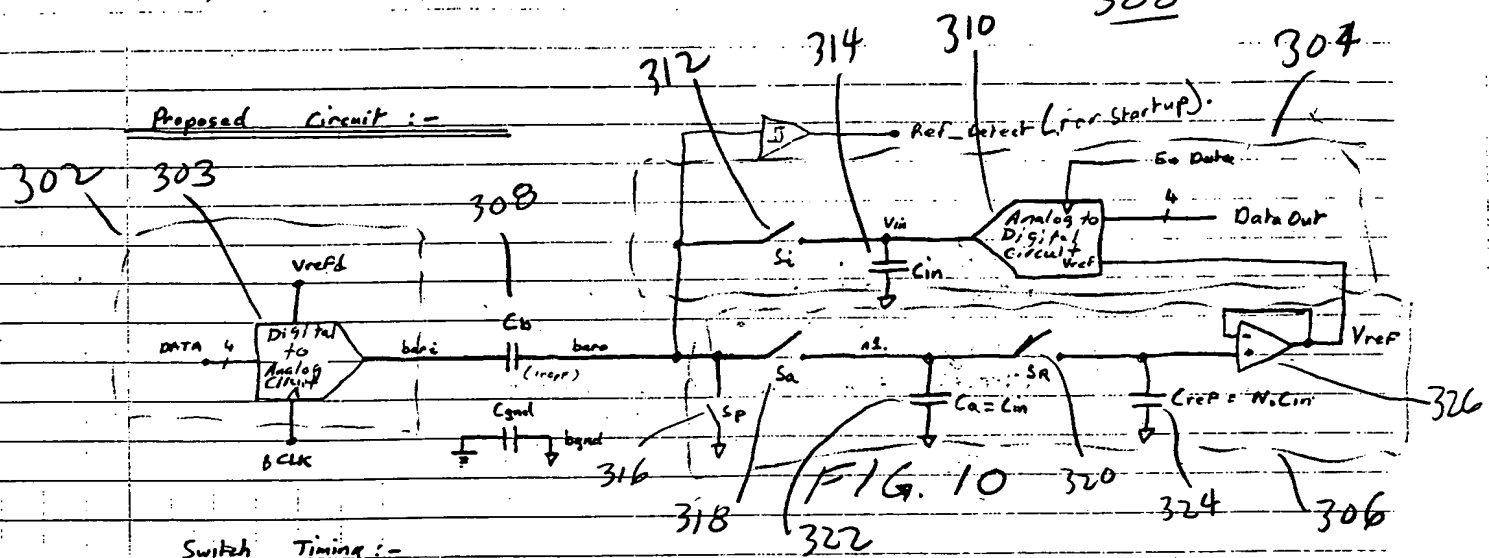


Fig. 11

~~Cref is chosen to be  $N \times Ca$ . This means that Vref is a moving average of the previous N Ref pulses. This allows some immunity to 'dud' Ref pulses. Without averaging, a 'dud' Ref pulse could wipe out successive data cycles. For a 4-bit converter, N should be greater than or equal to 16. This allows every Ref error to be less than one LSB size. The exact value of N is not terribly important.~~

WITNESSED AND UNDERSTOOD

SIGNED

DATE

SIGNED

SIGNED

DATE

DATE

TOP SECRET

300'

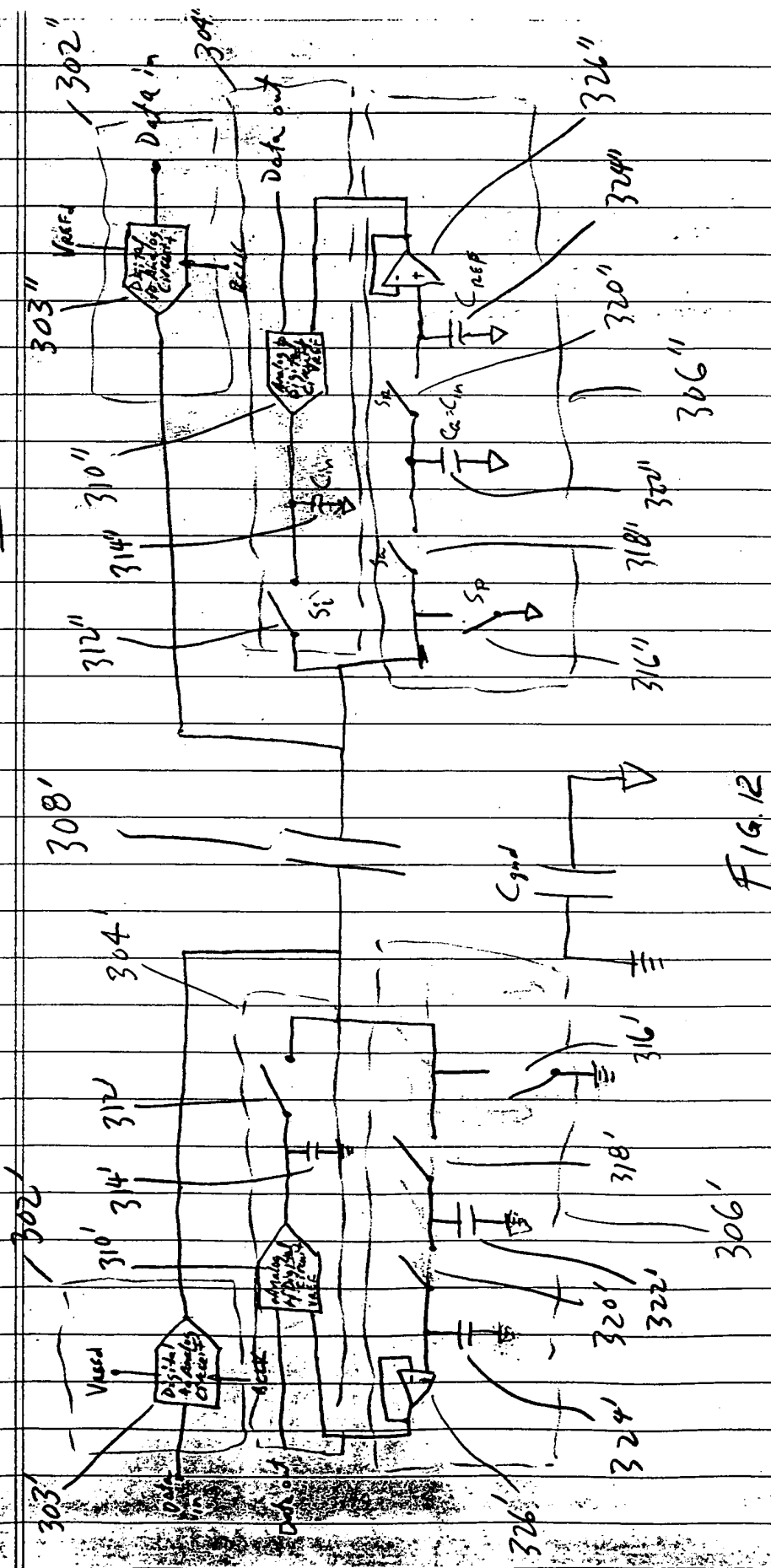


FIG. 12